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When Does Government Listen to the Public? Voluntary Associations and Dynamic Agenda Representation in the United States

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The aim of the article is to examine how the population size of voluntary associations affects the process through which the public's issue priorities are translated into policy priorities. We conduct a time series analysis of political attention in executive and legislative agendas at the U.S. federal level in the period 1971–2001, covering all issues addressed by the U.S. government. We show that the number of voluntary associations in a policy area has a positive conditioning effect on the link between public priorities and attention for the president's State of the Union Address. However, our results do not find a positive effect for voluntary associations at later stages of the policy cycle, which experience a higher degree of institutional friction. The findings underline the importance of distinguishing between different stages of policymaking when considering the impact of voluntary associations on dynamic agenda responsiveness.

KEY WORDS: policy agendas, voluntary associations, responsiveness

本文旨在研究自愿组织的规模数量如何对公众优先事项转化为政策优先事项这一过程产生影响。为此，我们对美国在1971年至2001年间联邦一级的行政和立法议题中的政治关注度采取时间序列分析，并涵盖了美国政府处理的所有问题。我们的结果表明，在政策领域，自愿组织的数量对公共优先事项和总统国情咨文之间的联系有着积极的影响。然而，我们同时发现，在制度摩擦程度较高的政策周期后期，自愿组织并不能对公众事项转化为政策事项的过程产生积极影响，反而带来了更高层次的制度摩擦。我们的研究结果强调，在考虑自愿组织对政策议程的影响时，需要对政策周期阶段进行区分。

Introduction

One of the core aims of democratic governance is for public policy to represent the views of the citizens (Dahl, 1956). A substantial number of studies have been dedicated to assess the link between public opinion and policy (for reviews, see Shapiro, 2011; Wlezien, 2016). However, past research on policy responsiveness has only paid scarce attention to the potential facilitators of information transmission between citizens and policymakers that may help align policy with public opinion. Arguably

organized interests can serve such a function and act as crucial transmission belts between the public and the policymakers increasing the likelihood that the views of the public are aggregated and translated into policy (Furlong & Kerwin, 2005; Rasmussen, Carroll, & Lowery, 2014).

However, perhaps not least as a result of the lack of systematic data on the configuration of social movements and interest groups, responsiveness studies rarely take these actors into account (for reviews, see Burstein, 2003, 2014; Weakliem, 2003). Many do so by considering one type of interest or policy area only (e.g., Agnone, 2007; Burstein & Freudenburg, 1978; McAdam & Su, 2002; Olzak & Soule, 2009; Soule & King, 2006; Soule & Olzak, 2004) or by focusing on a limited set of organized interests expected to be the most powerful ones (e.g., Gilens, 2012; Gilens & Page, 2014; Lax & Phillips, 2012). Therefore, there is still a great deal of scope for understanding whether the involvement of different organized interests affects the extent to which political decision makers respond to citizens.

Here, we focus on the ability of U.S. national-level, voluntary associations to affect dynamic agenda representation, that is, the process through which the public's issue priorities are translated into policy priorities (Bevan & Jennings, 2014; Jones, Larsen-Price, & Wilkerson, 2009). In other words, rather than examining whether voluntary associations affect the ability of government to adopt policy in line with public preferences we focus on whether the presence of organized interests impacts on the extent to which government pays *attention* to the issues that concern the public. We argue that a high number of voluntary associations in a policy area may strengthen agenda representation by increasing the level and credibility of the information decision makers possess regarding public priorities.

Existing cross-sectional studies looking at the relationship between aggregate opinion and policy liberalism in the U.S. states provide some evidence of such a conditioning impact of populations of organized interests (Gray, Lowery, Fellowes, & McAtee, 2004). However, the conditional impact of group populations has not been examined over a longer time period in a dynamic framework, which distinguishes between different stages of policymaking. To do so we integrate voluntary associations into a time series study of agenda responsiveness using data on the population of voluntary association in the United States over 30 years. Such an approach makes it possible to examine and draw causal inferences about the conditional impact of voluntary associations on the dynamic relationship between priorities and attention.

More specifically, we analyze political attention toward 19 policy areas at the U.S. federal level in the period 1971–2001, covering all issues the government deals with (see www.comparativeagendas.net/us). In order to do so, we link data on public priorities, political attention, and the population size of voluntary associations within these areas coded within a single coding scheme (Baumgartner & Jones, 2009). We consider variation in attention across different stages of the policy process, powers of government, and policymaking instruments by looking at political attention toward different policy areas in the president's State of the Union Address, congressional hearings, and congressional laws. For each agenda, our focus is on whether number of voluntary associations in a policy area affects the link between public priorities and attention. By looking at voluntary associations, we focus on a

“most likely case” for finding a positive effect of organized interests on the link between opinion and policy. Hence, such associations typically have strong roots in civil society and many of them explicitly represent diffuse, mass-based interests as opposed to representing specific economic interests (Olson, 1971). They should therefore be a good test case for examining whether organized interests have any potential to increase the ability of politicians to respond to the public.

Our findings provide evidence that voluntary associations exert a positive conditional impact on dynamic agenda representation early on in the policy process. The president’s State of the Union Address is more responsive to the public’s prioritization of an issue, the larger the population of voluntary associations in the issue area. This finding holds even when we control for the public salience of the policy area in the media. However, we also see that the conditioning impact of voluntary associations varies across different stages of the policy-making process. Higher degrees of institutional friction and transaction costs later in the policy process decrease the ability of voluntary associations to strengthen the link between public priorities and attention. In line with our expectations, we therefore only find evidence that voluntary associations exert a positive conditioning on agenda representation at the early stage of the policy process.

Voluntary Associations and Policy Responsiveness

The last decades have witnessed a growing body of literature on the public opinion–policy linkage (for reviews, see Wlezien, 2016; Weakliem, 2003). Studies have demonstrated that there is a relationship between public opinion—measured as either preferences or priorities—and public budgets, policy agendas, and policy outputs (e.g., Jones, Larsen-Price, et al., 2009; Page & Shapiro, 1983; Wlezien, 1995). A prominent scholar noted in 2010 that one of the limitations of the literature on policy responsiveness has been that, “many studies of the impact of opinion ignore everything (or almost everything) other than opinion itself, including variables that might be related to both opinion and policy” (Burstein, 2010, p. 73; see also Burstein, 2003; Page, 2002). Many recent studies of policy responsiveness have taken this criticism seriously and grown in sophistication. Rather than simply focusing on whether there is a linkage between public opinion or not, it has shifted attention to the factors that may condition such a linkage. It has, for example, considered the impact of national political institutions (e.g., Hobolt & Klemmensen, 2008; Soroka & Wlezien, 2010) and the characteristics of the policies under negotiation (e.g., Lax & Phillips, 2012; Page & Shapiro, 1983).

However, perhaps not least as a result of the lack of systematic data on the configuration of social movements and interest groups, responsiveness studies have largely ignored these actors. The few U.S. studies considering the role of both public opinion and advocacy typically examine one policy area or one type of interest (for reviews, see Burstein, 2003, 2014; Burstein & Linton, 2002). Examples include Agnone’s (2007) and Olzak and Soule’s (2009) work on the passage of environmental legislation, studies by Soule and Olzak (2004) and Soule and King (2006) regarding the ratification of the Equal Rights Amendment by the U.S. states, and Burstein and

Freudenburg (1978) and McAdam and Su's (2002) examination of war-related voting in the Vietnam era. The results of these studies are somewhat mixed but there is evidence that certain aspects of political decision making in the examined policy areas are influenced by public opinion and that some social movement activity can matter for policy. Moreover, together these studies provide strong support for adopting an encompassing approach to the study of policy change that considers the role of civil society representatives alongside public opinion.

In line with such a recommendation, some more recent studies of responsiveness look at a broad range of policy issues integrating measures of the involvement of organized interests. As an example, Gilens (2012) and Gilens and Page (2014) include an index of interest group alignment in their analysis of the link between public opinion and policy change on 1,779 questions related to U.S. federal policy. Whereas Gilens does not find evidence of an interaction effect between the two, he demonstrates that policy change is more likely when both interest groups and the public push for change (Gilens, 2012, chap. 5). Moreover, Lax and Phillips's (2012) study of 39 policies across eight issue areas in the U.S. states shows the probability of congruence between opinion and policy is higher if the interest group balance is on the same side as the opinion majority. However, the indices constructed by both Lax and Phillips and Gilens focus on the most powerful groups, which according to Gilens and Page themselves represent "only a small fraction of politically active groups" (2014, p. 572).¹ A recent study by Burstein (2014, chaps. 4 and 5) takes a different approach by systematically searching the Proquest database for instances of advocacy in regard to 60 policy proposals. Using such an approach the link between different types of group activity and the likelihood of subsequent policy change is much more modest. In fact, many of the issues analyzed by Burstein demonstrate little advocacy in the first place.

Rather than mapping the involvement of organized interests on specific issues, another group of recent studies have conducted analysis considering how the density and diversity of U.S. state interest group populations affect policy responsiveness. They relate data on the populations of organized interests in the U.S. states to the congruence between opinion and policy liberalism (Gray et al., 2004; Monogan, Gray, & Lowery, 2009) and budgetary spending (Jacoby & Schneider, 2001; Schneider & Jacoby, 2006). Gray et al. (2004) find a significant effect of interest group density on the opinion-policy liberalism relationship in one of the two years examined but note that its magnitude is relatively small. Jacoby and Schneider's studies of relative spending priorities paint a more optimistic picture with respect to group influence (Jacoby & Schneider, 2001; Schneider & Jacoby, 2006). Their most recent work shows that the proportion of expenditures on collective goods is higher, the higher the concentration of interest groups focused on lobbying in favor of such policies and the lower the concentration of groups lobbying toward particularized benefits. They also find that spending priorities are influenced by the partisanship of the electorate but do not examine a possible interaction between groups and partisanship (Schneider & Jacoby, 2006).

Overall, the existing evidence of the effect of organized interests on responsiveness is therefore somewhat mixed. The differences in findings likely result from

substantial discrepancies in the measures of organized interests used and the design of the analyses. Moreover, studies do not usually look at the conditional impact of social movements and interest groups on responsiveness, but tend to focus on the relative effect of these actors versus public opinion. Finally, the lack of time series data has meant that the studies considering multiple issues or policy areas have largely been cross-sectional in nature, which has made it harder to scrutinize and draw causal inferences. Instead, we take a dynamic perspective by considering how the structure of populations of voluntary associations in different policy areas affects responsiveness of agendas to policy priorities over a period of 30 years. Moreover, the unit of analysis in our pooled models is data on public priorities and policy attention in policy areas by year rather than global measures of these variables for a polity as a whole.

Theoretical Framework: The Conditioning Impact of Voluntary Associations on the Linkage between Public Priorities and Attention

Our argument is that voluntary associations affect agenda representation by stimulating the flow of information between the citizens and the political system (see also Claibourn & Martin, 2007). Seen from a bottom-up perspective, organized interests might provide information to the political decision makers making them aware of what their constituents think they should spend their time on. In this way, organized interests provide an informational shortcut concerning the importance of issues for governmental decision makers who have limited resources (e.g., Baumgartner & Jones, 2009) and who face cognitive and informational constraints (e.g., Simon, 1971; Jones, 2003). In turn, organized interests may communicate the results of public policymaking to their members and supporters so that the latter can formulate a new set of meaningful priorities for the future policy agenda. By making information directly available to their members and by facilitating debate on issues among their supporters, associations may thus help create what Boix and Posner (1998, p. 690) have referred to as “sophisticated consumers of politics.” Even when voluntary associations do not directly lobby on an issue they can thus affect the transmission of information between the public and the political decision makers and ultimately the extent to which the priorities of the public and politicians are aligned. In line with such a logic, recent literature has argued that organized interests should have the potential to act as a transmission mechanism ensuring that public views are passed on to decision makers and responded to by them (Furlong & Kerwin, 2005; Rasmussen et al., 2014).

Such an image of organized interests as a key vehicle through which information about public preferences can be aggregated and transferred to decision makers in an open and responsive policy process is not a new one but one that figures prominently in many of the classical works on democracy (Bentley, 1908; Easton, 1971; Truman, 1951).² The idea is that even if some groups will represent specific identity subgroups or economic interests, the fact that interests mobilize from across the continuum means that the group community as a whole can help transmit the view of

society. According to Burstein, interest organizations “represent some groups better than others [...] but overall may enhance the impact of public opinion on policy” (Burstein, 2003, p. 31).

The more organizations that are active the more likely it is that different parts of society are represented when it comes to transmitting information between the public and the political system. A high number of active organized interests is crucial for decision makers to get an accurate view of what the public wants. Many organized interests can be seen as representing a pooled effort to place something on the agenda. As an example, Agnone (2007) finds evidence that the link between opinion and the passage of legislation is “amplified” by the volume of protest activity within the area of environmental policy. Faced with a large community of voluntary associations in an area, it may also be harder for decision makers to shirk and devote attention to other topics even when they have an incentive to do so. We would therefore expect a positive effect of voluntary associations on agenda responsiveness:

Hypothesis 1: A higher number of voluntary associations strengthen the relationship between public priorities and political attention.

We cannot rule out the possibility that voluntary associations are not powerful enough to affect the linkage between constituents and elected politicians. Research on organized interests as a whole does not always find that they have a systematic impact on public policy, despite the fact that there is no lack of anecdotal evidence that they can play a role (for reviews on group influence, see Burstein, 2014; Burstein & Linton, 2002; Lowery, 2013; Rasmussen, Mäder, & Reher, 2017). Similarly, voluntary associations may not be successful in affecting a possible link between public priorities and attention. Gray et al.’s analysis of interest group populations and the linkage between global opinion-policy liberalism concludes that “It should also be clear, however, that the influence of organized interests on public policy is, at least in the aggregate, quite small” (2004, p. 419; see also Gray, Lowery, & Godwin, 2007; Monogan et al., 2009). Moreover, even if size of the population of organized interests does influence this link, it may be the positions of a few powerful actors that matter rather than the number of voluntary associations in the policy area. Based on such a view, we cannot rule out the possibility that the number of voluntary associations in a policy area does not affect the linkage between the public’s prioritization of a given policy area and the amount of attention devoted to it by policymakers.

One factor which should affect their ability to do so is the timing of their involvement. Hence, we would expect it to be more likely for voluntary associations to exert a positive effect on agenda representation at the early rather than later stages of the policy process. The literature of agenda setting has convincingly argued that there are differences in the levels of “institutional friction” between different stages of the policy process (Baumgartner, Breunig, et al., 2009; Bevan & Jennings, 2014; Jones & Baumgartner, 2005; Jones, Larsen-Price, et al., 2009).³ Institutional friction refers to the “formal institutional structures that introduce decision and transaction costs” making it harder to translate inputs into outputs (Jones, Larsen-Price, et al., 2009, p.

281). Earlier stages of governing processes are characterized by relatively low levels of “institutional friction” compared to later stages, which involve higher decision and transaction costs. As an example, the requirements to pass a law at the very final stage of the decision-making process are high since it is necessary to gather concurrent majorities in both houses (Baumgartner, Breunig, et al., 2009).

Variation in institutional friction between different policy stages might contribute to explaining not only why decision makers are less responsive to the public issue priorities at later stages of decision making (Baumgartner, Breunig, et al., 2009; Bevan & Jennings, 2014; Jones & Baumgartner, 2005; Jones, Larsen-Price, et al., 2009) but also why voluntary associations might have an easier time influencing the state-of-play early on. That organized interests place strong emphasis on controlling attention at the agenda-setting stages of the policymaking process is apparent in the interest group literature (e.g., Baumgartner, Berry, Hojnacki, Kimball, and Leech, 2009; Kingdon, 1984). While the ability of organized interests to affect political attention does clearly extend to the later stages of policymaking as well, research demonstrates that their opportunity to influence the final political decision-making stages is more limited (e.g., Olzak & Soule, 2009; Soule & King, 2006). We would expect the tendency for associations to be most influential at the early stages of the policymaking process to apply to not only their direct impact on agendas, but also their ability to link public priorities and political attention. During later stages in the policy process transaction costs are higher and there is less room for decision makers to make use of information supplied by associations when deciding whether to respond to the public. This suggests that the ability of groups to strengthen agenda representation will be strongest during the early stage of the policymaking process when institutional friction is low:

Hypothesis 2: Voluntary associations are more likely to exert a positive conditioning impact on the relationship between public priorities and political attention at the early rather than the later stages of the policy process.

Data and Methods

As stated, our focus is on dynamic agenda representation, that is, the process through which the public’s issue priorities are translated into policy priorities. As a result, we analyze the amount of attention devoted to a policy area rather than the direction of policy in an area. In order to test our hypotheses, we rely on different datasets from the U.S. Policy Agendas Project from 1971 to 2001 (see www.comparativeagendas.net/us) capturing policy attention from government, the public, and voluntary associations. Each dataset shares a common coding scheme that includes 19 major policy topics covering all issues that government deals with.

Dependent Variables

As we are interested in the combined effects of the number of voluntary associations and public priorities on government attention, we record the amount or count

of attention to different policy topics in three of the most important government agendas, which serve as our dependent variables.

The first of these variables is the president's State of the Union, which represents the president's agenda for the coming year and serves as a key document capturing the executive agenda at the early stage of the policymaking process. The president's level of attention is measured in our data source by classifying the policy content of each quasi-sentence or mention. In the subsequent analysis, we analyze variation in the number of mentions devoted to a given policy topic in a given year. While the president is a key policymaker that the public and organized interests may wish to influence, Congress is equally important from a policymaking perspective, not least because the president relies on Congress for bills to be put on the agenda and get adopted. In order to capture Congressional attention, we therefore use a second dependent variable, which records the number of House hearings concerning a given policy topic in the analyzed period.⁴ In most cases, House hearings represent Congress' first formal consideration of new policy and policy problems. Such hearings serve as a primary mechanism for Congress to gather evidence and signal concern for issues as well as a tool for considering the high volume of introduced bills. Our third and final dependent variable measures the number of public laws ultimately adopted by Congress that dealt with the different policy topics. Such U.S. public laws are the results of the policymaking process between the U.S. president and Congress following the voting and signing procedures of creating a law.

Each of these dependent variables represents a significant element of the U.S. policymaking process capturing both executive and legislative attention as well as the distribution of attention in government outputs. This allows us to consider variation in the amount of attention across different stages of the policymaking process and to test our argument that the impact of voluntary associations on dynamic agenda representation varies across different stages of the policy process.

Independent Variables

In order to measure public priorities, we use responses to the question: "What do you consider to be the most important problem facing your country?" otherwise known as the "most important problem" (MIP) question from Gallup. These data have been recoded by the U.S. Policy Agendas Project to match the same policy topic coding system as the other variables we use in the model. The MIP question stands out as being the only source of information that has been asked consistently over time (Jones, Larsen-Price, et al., 2009) and reflects not only the salience but also the problem status of an area at a given point of time (Wlezien, 2005), both of which influence whether voters express a desire to prioritize a given policy area. As a result, it has been used to measure priorities and agenda representation in several existing pieces of research (e.g., Bevan & Jennings, 2014; Jones & Baumgartner, 2004; Jones, Larsen-Price, et al., 2009). Importantly, priorities of a policy area are different from the public preference for a specific degree of regulation or spending within a given policy area. Some voters who prioritize the area will desire more spending and

tighter regulation, others will not. This makes the MIP question appropriate for the current study where the specific purpose is to relate public priorities to attention devoted to policy areas by politicians. Such attention also reflects their prioritization of the area rather than the specific degree or direction of regulation in adopted policies.

To measure the population of voluntary associations, we use Encyclopedia of Associations Project data on the number of national-level voluntary associations in each policy domain over time. This dataset on voluntary associations was coded based on brief, detailed actor summaries about their area of activities and has been divided by 100 to better present the models' coefficients.⁵ The database consists of organizations that exist in more than one state and whose members have joined voluntarily aiming at obtaining nonprofit goals, for example, citizen groups, hobby groups, and nongovernmental organizations. While it excludes firms, it does not exclude business interests altogether since trade associations, professional societies, unions, and all other types of related associations matching the national and nonprofit criteria set by the publisher are included. The fact that the database excludes firms and is focused on voluntary, nonprofit advocates makes it particularly useful as a test case for whether organized interests may have a positive impact on the relationship between public priorities and political agendas. The rootedness of voluntary associations in civil society provides favorable conditions for the likelihood that they act as a transmission mechanism between the public and the political system.

Our data source represents the number of voluntary associations with an interest in an area rather than just those associations which have engaged in formal lobbying activities (Bevan, 2013).⁶ In this way, our density measure takes into account that not all voluntary associations directly engage in lobbying all of the time and that such associations use a broad range of tactics beyond formal channels of access. Moreover, it emphasizes our theoretical argument that associations may not only affect agenda representation through their lobbying efforts but also by fulfilling a more general informational function linking group constituencies and the political system. Voluntary associations can be thought about as a "pool of latent lobbyists" with a formal presence within different issue areas. Not surprisingly, the database of voluntary associations has already been used in other pieces of research (e.g., Martin, Baumgartner, & McCarthy, 2006; Mintoff, 1997; Nownes & Lipinski, 2005; Walker, 1983), and its validity as a secondary data source has been thoroughly researched (see Bevan et al., 2013). Moreover, given that we examine responsiveness to the national policy agenda, the focus on the activities and characteristics of the population of national associations is appropriate.

Control Variable

Government attention to particular issues is also likely to be influenced by events or at least the general level of public attention to events. In order to control for the effect of events, we use data from the U.S. Policy Agendas Project's *New York Times* Index dataset capturing the level of media attention to different issue areas over time through a random sample of all stories published in the *New York Times* over the course of the year. This measure has been transformed according to the

recommendations of the U.S. Policy Agendas Project to address differences in the number of stories per year due to formatting and other changes to the *New York Times*. The count of stories is therefore divided by the estimated number of articles in each year in order to account for changes in the number of articles over time. This measure has been multiplied by 100 to better present the models' coefficients. While not a perfect measure of events, media attention allows us to control for the general level of attention to each topic over time. Crucially, it allows us to scrutinize whether variation in the priority–attention linkage is tied to the public visibility of an issue rather than the size of the population of associations as existing literature finds evidence of a relationship between media activity and political attention (e.g., Baumgartner & Jones, 1993; Birkland, 1997; McCombs & Shaw, 1972). Our Supporting Information Appendix presents graphs for all variables included in our final model by issue area.

Methods

Building on previous research on the effects of public priorities on political agendas (e.g., Bevan & Jennings, 2014), we focus on the dynamic effects of our theory through the use of time series cross-sectional analyses. In an initial step, we analyzed the variables' autocorrelation and partial autocorrelation functions and conducted unit-root tests to determine the form of time series processes at work in the data. All three dependent variables showed no evidence of a unit-root using robust Breitung panel unit-root tests with the null hypothesis that panels contain unit-roots: SoU (-5.325^{***}), Hearings (-5.554^{***}), and Laws (-4.103^{***}). Yet, as a result of the low power of these tests, we also conducted unit-root tests for individual panels. They demonstrated clear evidence of unit-roots in five hearings panels and two law panels.⁷ In addition, for both hearings and laws, the economy and health panels proved to be cointegrated with the independent variables in the models. Our data therefore consist of a mix of both integrated and stationary panels, making the choice of model a challenge with clear heterogeneity between the panels. Our data are also marked by another common concern for many time series cross-sectional datasets, that is, that the number of panels ($N = 19$) is roughly proportional to the length of time ($T = 31$) (Pesaran, Shin, & Smith, 1999, p. 622).⁸

The pooled mean group (PMG) estimator, a panel extension of the autoregressive distributed lag (ARDL) model proposed by Pesaran et al. (1999), addresses both concerns. This model is suited for mixed orders of stationary and unit-root data and it is appropriate when there is a high degree of proportionality between time and panels. More specifically, the PMG estimator offers a model where common long run/"lagged effects" across all panels can be estimated, but where short run/"change effects" and error-correction coefficients are estimated individually for each panel. In this case, the estimated short-run effects are the mean effects across all panels with appropriately large standard errors. The output looks similar to a time series cross-sectional error correction model (ECM), but the estimates are based on separate

models for the short-run components of each panel to address potential heterogeneity between these panels.

Using such an approach is preferable in our case, where we expect a common long-run relationship between government agendas and public priorities, but where short-run effects of the predictors are particularly susceptible to variation between panels.⁹ We can for example imagine that short-run disturbances (such as a spike in opinion due to events like the 1970s oil crisis or economic recessions) may have a varying effect in different panels (e.g., Bevan & Jennings, 2014; Jennings & John, 2009). Moreover, there may be differences in short-run effects between the panels due to clear differences in their average level of prioritization. As an example, the effect of a 5 percentage point increase in the prioritization of an issue is likely to be different for an issue that tends to be highly prioritized (such as the economy) than for an issue that usually receives a low level of prioritization (such as agriculture). Even though the inflated standard errors produced by the PMG estimator make it unlikely that we find effects of our variables in the short-run, we believe that it is the most appropriate technique for our data.¹⁰

Given the ongoing debates concerning how to model integrated and stationary time series data we also present a number of other types of models in the Supporting Information Appendix. These include ECMs with panel-corrected standard errors. We also include Dead Start and General ARDL models with a lagged dependent and lagged independent variables. The results of these analyses offer the same general inferences as our PMG estimates finding support for hypothesis 1 with the State of the Union data, and clear support for hypothesis 2 with the positive conditioning impact of associations declining or disappearing in hearings and laws. Our full PMG model is below and includes coefficient estimates of our independent variables common across all panels. Moreover, it contains individual “change” and “error correction term” estimates for each panel in the form introduced by Pesaran et al. (1999, pp. 623–24) rather than having period lagged values or fixed effects:

$$\Delta y_{it} = \theta_i y_{it-1} + \beta x_{it-1} + \gamma_i \Delta x_{it} + \varepsilon_{it}$$

In the model, changes in the policy agenda relating to a particular issue i at time t (Δy_{it}) are a function of the common lagged effects (βx_{it-1}) for each variable (public priorities, associations, the interaction between the two, and the *New York Times* control) and individual panel effects for the error correction ($\theta_i y_{it-1}$) and change effects ($\gamma_i \Delta x_{it}$). Note, in the case of both the error correction and change effects, that coefficients vary by issue (panel) i , but this is not the case for the common lagged effects. While the PMG model does in fact calculate and allow for effects for each individual panel to be presented, the results in Tables 1–3 present the average of the change and error correction estimates across panels. Hence, our focus is on the common patterns across issues.

Analyses

In order to test the effects of association density on policy attention, we present several time series cross-sectional PMG estimates in Tables 1–3 for counts of each of

Table 1. PMG Estimates on the Change in the Count of Current Mentions in the State of the Union Address

	Model 1	Model 2	Model 3
Public priorities _{<i>t</i>-1}	1.026*** (0.196)	1.240*** (0.216)	0.881*** (0.234)
<i>New York Times</i> _{<i>t</i>-1}	0.487* (0.195)	0.712*** (0.198)	0.685*** (0.198)
Associations _{<i>t</i>-1}		-0.473* (0.226)	-0.453* (0.229)
Public priorities _{<i>t</i>-1} * Associations _{<i>t</i>-1}			0.062 ⁺ (0.033)
Error correction _{<i>it</i>}	-0.916*** (0.035)	-0.950*** (0.037)	-0.984*** (0.035)
ΔPublic priorities _{<i>it</i>}	-12.279 (9.868)	-12.111 (9.919)	-149.673 (142.384)
Δ <i>New York Times</i> _{<i>it</i>}	0.794 (0.628)	0.799 (0.635)	0.594 (0.544)
ΔAssociations _{<i>it</i>}		-14.848 ⁺ (7.981)	-23.585 (16.217)
ΔPublic priorities _{<i>it</i>} * ΔAssociations _{<i>it</i>}			530.985 (487.368)
Constant	6.514** (2.160)	10.058*** (2.879)	9.932*** (2.638)
Log likelihood	-2,356	-2,344	-2,316
N	589	589	589

⁺ $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 2. Pooled Mean Group Estimates on the Change in the Count of Current House Hearings

	Model 1	Model 2	Model 3
Public priorities _{<i>t</i>-1}	0.642*** (0.115)	0.638*** (0.129)	0.666*** (0.141)
<i>New York Times</i> _{<i>t</i>-1}	2.979*** (0.538)	2.714*** (0.586)	2.569*** (0.509)
Associations _{<i>t</i>-1}		-0.125 (0.358)	0.299 (0.316)
Public priorities _{<i>t</i>-1} * Associations _{<i>t</i>-1}			-0.025 (0.032)
Error correction _{<i>it</i>}	-0.606*** (0.062)	-0.708*** (0.059)	-0.733*** (0.067)
ΔPublic priorities _{<i>it</i>}	9.818 (10.041)	7.763 (8.528)	-68.318 (90.902)
Δ <i>New York Times</i> _{<i>it</i>}	2.824** (0.984)	2.916*** (0.881)	2.690** (0.914)
ΔAssociations _{<i>it</i>}		30.701** (11.264)	31.687** (11.281)
ΔPublic priorities _{<i>it</i>} * ΔAssociations _{<i>it</i>}			-31.780 (441.540)
Constant	23.651*** (4.257)	26.720*** (4.319)	25.710*** (4.463)
Log likelihood	-2,283	-2,255	-2,237
N	589	589	589

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

the government agendas: State of the Union mentions, House hearings, and laws. Each table presents a basic model of aggregate dynamic agenda representation that includes both change and lagged effects for public priorities by issue and a second

Table 3. Pooled Mean Group Estimates on the Change in the Count of Current Laws

	Model 1	Model 2	Model 3
Public priorities _{t-1}	-0.022 (0.066)	0.077 (0.049)	0.156** (0.054)
<i>New York Times</i> _{t-1}	-0.000 (0.122)	0.072 (0.117)	0.063 (0.114)
Associations _{t-1}		-0.491*** (0.101)	-0.421*** (0.106)
Public priorities _{t-1} * Associations _{t-1}			-0.022* (0.011)
Error correction _{it}	-0.981*** (0.087)	-1.102*** (0.075)	-1.114*** (0.075)
Δ Public priorities _{it}	-10.247 (9.138)	-9.918 (9.588)	-17.855 (12.299)
Δ <i>New York Times</i> _{it}	-1.663 (1.242)	-1.570 (1.265)	-1.682 (1.264)
Δ Associations _{it}		7.504* (3.987)	7.959* (3.840)
Δ Public priorities _{it} * Δ Associations _{it}			53.916 (37.694)
Constant	15.615** (5.042)	19.118*** (5.280)	18.894*** (5.206)
Log likelihood	-1,811	-1,767	-1,756
N	589	589	589

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

model that adds association density by issue. Finally, we present a third model for each agenda that also includes an interaction between association density and public priorities to test our hypotheses.

We begin our analyses by considering the effects of association density and public priorities on attention in the State of the Union Address through Table 1. Before exploring the conditioning impact of groups, we consider the main effects of public opinion, groups, and media saliency in Models 1 and 2. The results in Table 1 are consistent with previous research on the effect of public priorities on the current number of mentions in the State of the Union.¹¹ We find a significant positive effect for lagged public priorities. This offers clear evidence that the previous level of public prioritization leads to a positive growth in the number of mentions in the State of the Union based on the lagged variable. Similarly, our lagged control for the media agenda is positive and generally significant throughout each of the models indicating that the president spends more time on the issues that have received attention in the media. Interestingly, we see that when introducing association density in Model 2, the lagged effect of public priorities is strengthened rather than weakened. The same pattern applies to the lagged effect of the media agenda, whose level of significance is also higher when controlling for associations. Moreover, we see that association counts themselves have a negative rather than a positive impact in both the change and lagged coefficients in Model 2.

Since our theory argues for a conditional, rather than direct effect of association density on the government's response to public priorities our primary interest is in Model 3. To test the hypothesized, conditional effects of association density on agenda representation, it includes interactions between change and lagged public priorities and association density as well as all substantive terms and the media

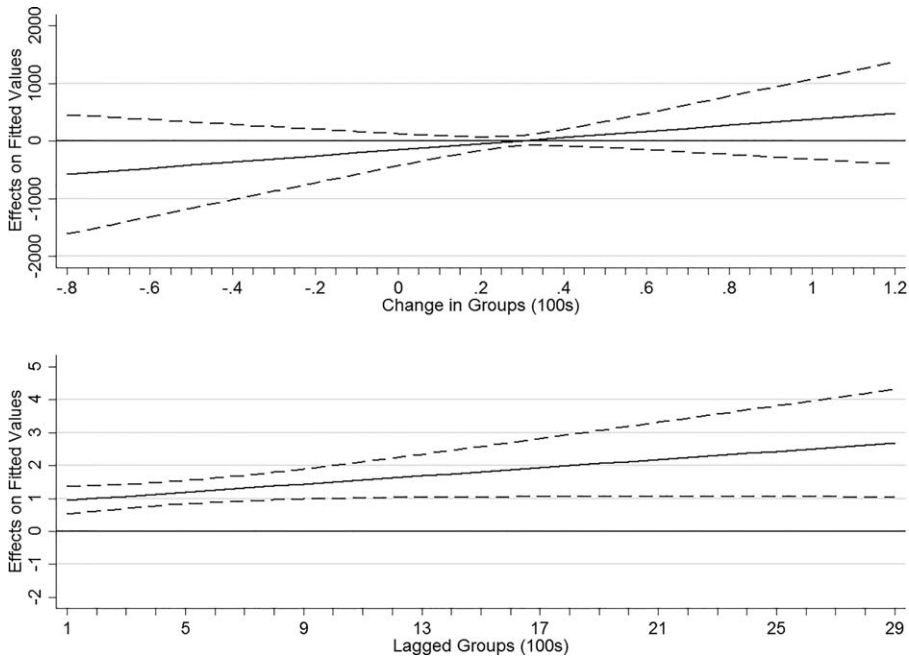


Figure 1. Marginal Effects on Change in the Count of Current Mentions in the State of the Union Address.
Note: The solid line is the predicted effect for a one-unit change in public prioritization while the dashed lines indicate the 95% confidence interval.

control. Although the log likelihood score indicates that this model is only moderately better fitting, its results prove quite interesting. In line with the expectation in hypothesis 1, there is a positive and marginally significant effect for the interaction between lagged public priorities and lagged association density.

The marginal effects graphs presented in Figure 1 help us inspect the extent to which the impact of public priorities on agendas varies for different numbers of associations. They illustrate the effects for the observed changes in associations (ranging from -0.8 to 1.2) and the range of the total number of associations (from 1 to 29) in the data—both calculated in 100s (see Supporting Information Appendix Figure A5 for more information on association counts). The solid lines represent the actual effects and the dashed lines indicate the 95 percent confidence intervals. Looking at the top panel first, we see that the marginal effect for change in public priorities is insignificant across the range of change in associations. As discussed in the Methods section, this is expected given the fact that the change effects in the PMG model represent the mean coefficient across all 19 panels smoothing out potential variation between them.

Instead, the marginal effects for lagged public priorities on attention are significant across the entire range of population sizes in the bottom graph. Moreover, the bottom of Figure 1 visualizes the effect of the positive interaction term ($p < 0.10$) between associations and priorities. As expected, the effects for lagged public priorities are larger, the higher the number of associations in an issue area. Our Supporting

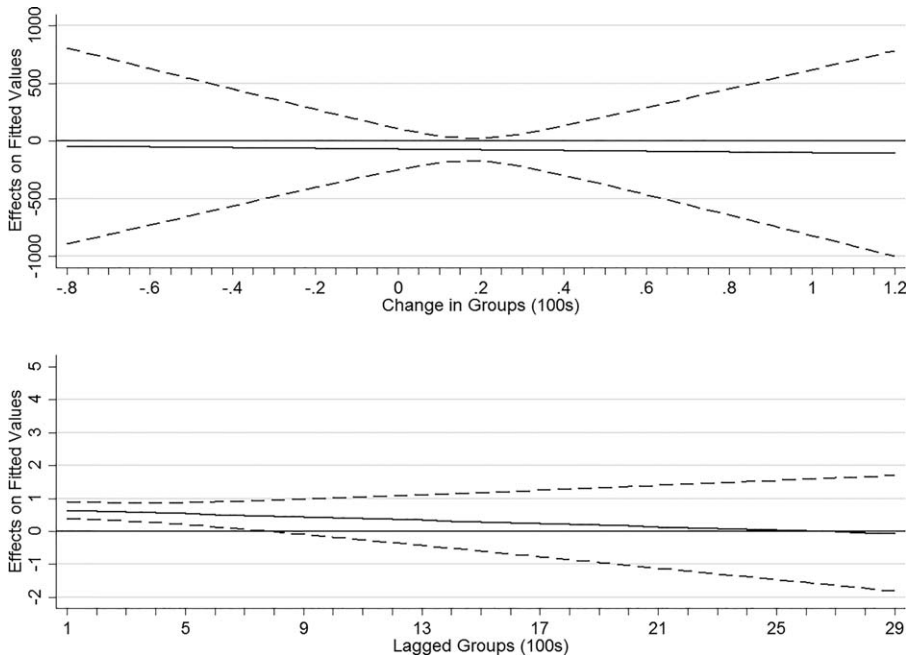


Figure 2. Marginal Effects on Change in the Count of Current House Hearings.

Note: The solid line is the predicted effect for a one-unit change in public prioritization while the dashed lines indicate the 95% confidence interval.

Information Appendix shows that this finding is robust when using different types of models than the PMG estimator. Overall, there is thus support for the argument in hypothesis 1 that association numbers strengthen the linkage between public priorities and the agenda of the State of the Union Address.

We now turn to examining the same relationships for our second agenda: House hearings. Focusing on the main effects first, we again find consistent support for positive lagged effects for public priorities and the media agenda on agenda attention in Models 1 and 2 in Table 2. In addition, we also find a significant and positive change effect for the media agenda on House hearings in these models. According to Model 2, there is no significant main effect of lagged association numbers whereas changes in association numbers have a positive main effect on the number of House hearings.

When it comes to examining the hypothesized, conditioning effect of association numbers on the relationship between public priorities and agenda attention, we again introduce an interaction in Model 3 and plot its effect in Figure 2. Interestingly, the bottom half of Figure 2 tells a distinctly different story from the one we found for the State of the Union results. Here, the marginal effects calculated based on the interaction between lagged priorities and lagged association numbers decline as the number of associations increases, with no significant effects at roughly 700 associations. However, the slope is never significantly negative meaning that we do not have evidence that associations condition agenda representation in either a positive or negative direction. While earlier than expected, this result supports hypothesis 2

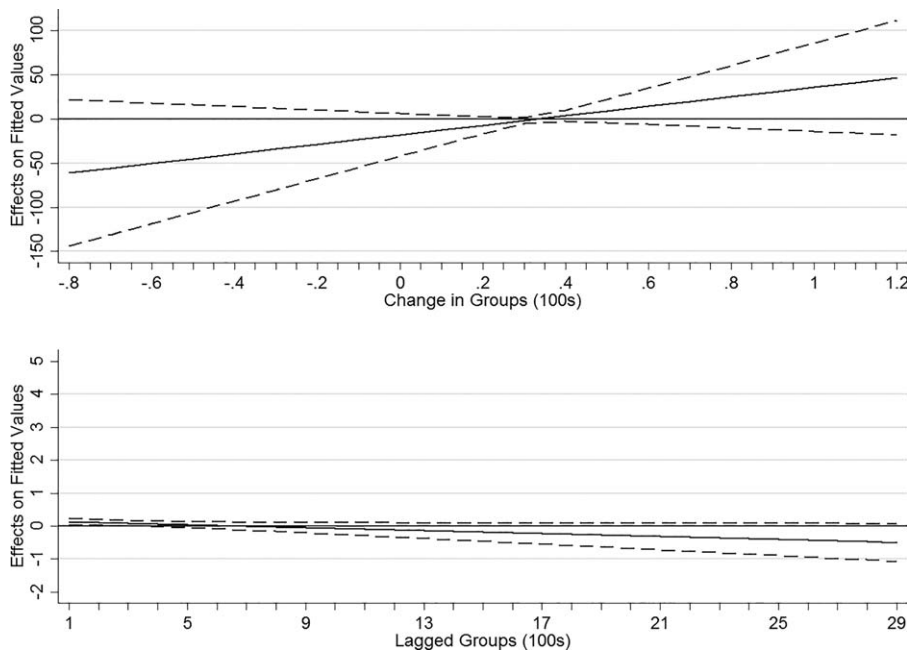


Figure 3. Marginal Effects on Change in the Count of Current Laws.

Note: The solid line is the predicted effect for a one-unit change in public prioritization while the dashed lines indicate the 95% confidence interval.

that the conditioning effect of associations weakens further into the political process. For hearings, there is also no conditioning, short-run effect of associations when we look at the top graph in Figure 2.

Finally, we explore the same relationships for laws in Table 3. Here, the results are distinct from the other two agendas with no significant main effects for public priorities and the media agenda in Models 1 and 2. According to Model 2, associations have a positive, main effect for changes, but a negative effect for the lagged value suggesting that issue areas with large numbers of associations do not subsequently experience a larger law production.

When it comes to assessing the conditioning impact of associations on agenda representation at the lawmaking stage, the marginal effects in Figure 3 plot the interactions introduced in Model 3. Whereas these graphs are similar to those for House hearings in form, the threshold at which the effect of public priorities on the agenda becomes insignificant is even lower than for house Hearings, that is, approximately 300 associations. There is also support for our expectation that we are less likely to see a positive, conditioning effect of associations later than early in the policy process. If anything, the lagged effect is negative suggesting that, at the lawmaking stage, participation of associations might even prevent the political agenda from responding to the priorities of the public. It should be noted though that despite the negative and significant effect of the interaction term, there is no significant difference in the effect of priorities on the agenda within our observed range of associations ($p < 0.05$), just as we saw for hearings. Similarly, laws also do not experience

conditioning effects of groups on agenda representation in the short-run analysis in Figure 3.

Conclusion

While voluntary associations have often been praised for contributing to the functioning of democratic governance, we have little systematic evidence of how they affect the opinion-policy linkage. The reason is that the vast share of the policy responsiveness literature does not consider the role of voluntary associations or organized interests in general. When doing so we find evidence that voluntary associations have the potential to act as a transmission mechanism for public priorities by positively conditioning the relationship between public priorities and government attention. When there are many active associations on an issue, information about public priorities can get transmitted to the decision makers more easily and with a louder voice. In such cases, political decision makers are more likely to know what the public cares about and have a harder time ignoring the public.

However, as expected, there is variation in the extent to which the transmission mechanism works between different stages of the policy process. To control for such a possibility, our research design considered agendas of different powers of government at different stages of the policy process. Our findings show that the effects of public priorities and voluntary associations only reinforce each other early in the policy process. In contrast, we did not find the same conditioning impact of associations on dynamic agenda representation for Congressional House hearings and laws as we did for the president's State of the Union Address. As a result, it is early on in the policy process when institutional friction and transaction costs are low that associations have the potential to serve as a linkage between the public and the decision makers. In fact, we saw that, at the last stage of the policy process, there may even be the possibility that more voluntary associations create "noise," making it less likely for public priorities to be translated into the agenda for laws.

In the future, there is certainly scope for additional research on the conditioning impact of organized interests on responsiveness. The generalizability of our findings beyond voluntary associations should be scrutinized with alternative measures of groups as more data on interest group populations over time become available in the United States as well as other political systems. Voluntary associations serve as an important test case for considering whether organized interests may play a role in linking public and agenda priorities. As future projects manage to code additional data on voluntary and other types of interest groups, our findings with respect to the conditioning impact of voluntary associations on agenda representation should therefore be scrutinized further. Hence, they are likely to constitute a most likely case for finding a positive effect as a result of their strong roots in civil society and the wider public. The constraints faced by organized interests as a whole when it comes to affecting agenda representation may thus be even more severe.

Finally, even though we find a positive link between the number of voluntary associations and dynamic agenda representation at the early stage of the policy process, it is also important to point out that we cannot say whether association activity

results in policies more or less in line with public priorities and/or the opinions of voluntary associations. What we can say is that more associations mean that the State of the Union is more likely to address the issues that concern the public. This is appropriate here given that our focus is on whether associations serve as a vehicle for increasing agenda attention of decision makers to a topic that the public cares about by stimulating awareness and concern for the topic. Whether the contents of the policies these politicians ultimately produce end up reflecting the preferences of the public and voluntary associations is another issue. Answering that question would require an approach that links the preferences of these two types of actors with policy on specific issues (Rasmussen, Romeijn, & Toshkov, forthcoming). Future research should therefore examine not only whether the overall number of associations but also the positions of the group community affect policy responsiveness.

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Notes

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1. As an example, Gilens (2012, chap. 5) uses a list of the organizations listed at least once in *Fortune's* Power 25 from 1997 to 2001 plus the 10 industries with the highest lobbying expenditures (not already represented on the list); that is, altogether 43 interest groups.
2. An alternative view (which has been referred to by Lowery and Brasher [2004] as “the transactions school”) casts a more skeptical view on the potential ability of interest groups to act as representatives of the public. It emphasizes how the group community does not represent different segments of society equally but is biased toward special interests, such as business groups (e.g., Schattschneider, 1960; Schlozman, 2010; Schlozman & Tierney, 1986). According to the transactions school, a higher number of organized interests might therefore create a risk that decision makers divert attention to particularized interests rather than the view of the general public. Given that we focus on voluntary associations rather than the entire population of organized interests, it is less relevant to test this perspective here.
3. Similarly, there may be variation in institutional friction between different political systems (Jones, Baumgartner, et al., 2009).
4. Our focus on House hearings is due to the nature of the U.S. House of Representatives as the primary initiator of Congressional attention. With the majority of Senate and joint hearings conducted in response to attention started in the House the use of a combined measure including Senate hearings is less appropriate. However, alternative analyses not presented here combining all Congressional hearings and on Senate hearings alone offer the same inferences, but are poorer fitting.

5. Previous research has argued that the data for a given copyright year in the register most accurately describe the organizational landscape 4 years earlier due to the time it takes to locate new associations, enter information, and update data in the register for the publisher (Bevan, Baumgartner, Johnson, & McCarthy, 2013). We take this 4-year delay into account by using copyright data to construct our 1971–2001 time series.
6. Versions of the models using squared counts of associations to account for possible curvilinear effects were also tested, but led to the same statistical inferences. As a direct interpretation of the number of associations is more substantively meaningful, we present our linear findings here.
7. Specifically, Augmented Dicky-Fuller tests failed to reject the null hypothesis of a unit root for the economy (–2.593+) and health (–2.123) for laws and for the economy (–2.55), health (–2.690+), energy (–2.310), defense (–2.669+), and foreign relations (–2.384) for hearings.
8. Pesaran et al. (1999) do not offer a clear definition of proportionality but use the term to refer to a scenario in which N and T are of a similar size. They do however note an example case with a similar degree of proportionality ($N = 23$; $T = 32$) to ours.
9. Combined Hausman tests support this assumption with insignificant Chi-squared coefficients of 2.63 for the State of the Union, 5.21 for hearings, and 2.77 for the laws models comparing the mean group (MG) estimator, which estimates and averages individual ARDL models for short- and long-run effects of all variables across all panels, to the PMG model presented here. As Pesaran et al. (1999) note failure to reject the null of no systematic differences between coefficients between the MG and PMG estimates suggests the PMG model is more appropriate due to its greater precision and lower susceptibility to outlier estimates when the emphasis is on common effects between panels in the long run.
10. Our data are however count data which presents its own unique challenges on top of the challenges normally associated with time series data. Unfortunately, we are not aware of time series cross-sectional count models that can also address cointegrated data and we have therefore chosen to present effects based on a less than ideal linear regression setup. However, in order to demonstrate the robustness of our substantive inferences, we also conducted analyses based on the percentage of attention each issue area receives per year, which are presented in the Supporting Information Appendix. While this competitive measure where the level of attention in an issue is seen in relation to other issue areas does not match our theory and is harder to discuss in terms of effect sizes, these alternative analyses led to the same general inferences.
11. Here, and elsewhere in the article, the word “current” is used to indicate effects on a single point in time. In time series models, the total effect of a variable generally lasts for several time periods. We have chosen to only present the effect on current State of the Union mentions, House hearings, and laws in our analyses to match previous research and to present a cleaner picture.

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